*भारतीय मानक*
***Indian Standard***

**IS 4410 (Part 6) : 2022**

# नदी घाटी परियोजनाओं से संबंधित शब्दावली

## भाग 6 जलाशय

*( दूसरा पुनरीक्षण )*

# Glossary of Terms Relating to River Valley Projects

## Part 6 Reservoirs

*( Second Revision )*

ICS 93.160



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**November 2022** **Price Group 4**

Reservoirs and Lakes Sectional Committee, WRD 10

FOREWORD

This Indian Standard 4410 (Part 6) (second revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Reservoirs and Lakes Sectional Committee had been approved by the Water Resources Division Council.

A number of Indian Standards have already been published covering various aspects of River Valley Projects. These standards include technical terms and definitions of terms which are required to avoid ambiguity in their interpretation. To achieve this end, the Sectional Committee on relating to River Valley Projects has brought out 'Glossary of terms relating to River Valley Projects' which has been published in 23 parts. This (Part 6) contains definitions of terms relating to reservoirs and to its various components. Other published parts of this standard are:

| | |
|---|---|
| Part 1 | Irrigation Practice |
| Part 2 | Project Planning |
| Part 3 | River and River Training |
| Part 4 | Drawings |
| Part 5 | Canals |
| Part 7 | Engineering Geology |
| Part 8 | Dams and Dam Section |
| Part 9 | Spillways and Siphons |
| Part 10 | Hydro-electric Power Station Including Water Conductor System |
| Part 11 | Hydrology |
| Part 12 | Diversion works |
| Part 13 | Operation, Maintenance and Repair of River Valley Projects |
| Part 14 | Soil Conservation and Reclamation |
| Part 15 | Canal Structures |
| Part 16 | Gates and Valves |
| Part 17 | Water Requirements of Crops |

*(Continued on third cover)*

*Indian Standard*

# GLOSSARY OF TERMS RELATING TO RIVER VALLEY PROJECTS

# PART 6 RESERVOIRS

*( Second Revision )*

## 1 SCOPE

This standard (Part 6) contains definitions of terms relating to the various types of reservoirs, storage and sedimentation in reservoirs, and evaporation losses from reservoirs, but does not contain definitions of terms relating to sub-surface or ground water reservoirs.

## 2 REFERNCES

The Indian Standards listed below contain provisions which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on these standards are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below :

| *IS No.* | *Title* |
|---|---|
| 5477 (Part 1) : 1999 | Fixing the capacities of reservoirs methods: Part 1 General requirements (*first revision*) |

## 3 RESERVOIRS

A pond, lake, or other space, either natural in its origin or created in whole or in part by building of engineering structures, which is used for storage, regulation, and control of water. Small reservoirs are also called tanks.

## 4 TYPES OF RESERVOIRS

**4.1 Auxiliary or Compensatory Reservoir** — A reservoir which supplements or absorbs the spill/release of upstream main reservoir.

**4.2 Balancing Reservoir** — A reservoir down stream of (or subsidiary to) the main reservoir for holding water released from the main reservoir in excess of that required for irrigation, power generation or other purposes.

**4.3 Bank Side Reservoir** — Reservoirs that are made by diverting water from local rivers or streams to an existing reservoir.

**4.4 Conservation Reservoir/Conservation Storage Capacity** — A reservoir impounding water for useful purposes, such as irrigation, power generation, recreation, domestic, industrial, and municipal supply, etc.

**4.5 Detention Reservoir** — A reservoir wherein water is stored for a relatively brief period of time, part of it being retained until the stream can safely carry the ordinary flow plus the released water. Such reservoirs usually have outlets without control gates and are used for flood regulation; also called ‘Flood Control Reservoir’ or ‘Retarding Reservoir’.

**4.6 Distribution Reservoir** — A reservoir connected with distribution system of a water supply project, used primarily to care for fluctuations in demand which occur over short periods and also as local storage in case of emergency (such as a break in a main supply line failure of pumping plant).

**4.7 Grit Reservoir** — A reservoir used for storage of turbid water for the purpose of sedimentation; also called ‘Settling Reservoir’ or ‘Silting Reservoir’.

**4.8 Impounding Reservoir** — A reservoir with gate-controlled outlets wherein surface water can be retained for a considerable period of time and released for use at a time when the normal flow of the stream is insufficient to satisfy requirements; also called ‘Storage Reservoir’.

**4.9 Multipurpose Reservoir** — A reservoir constructed and equipped to provide storage and release of water for two or more purposes such as irrigation, flood control, power generation, navigation, pollution abatement, domestic and industrial water supply, fish culture and recreation; also called ‘Multiuse Reservoir’.

**4.10 Natural Reservoirs** — Reservoirs created by natural means; also called ‘Lakes’.

**4.11 Normal Ponded Reservoir** — Storage reservoir normally ponded up to full reservoir.

## 5 TERMS RELATING TO STORAGE IN RESERVOIRS

**5.1 Active Capacity** — The storage available for project purpose, usually the storage between the lowest allowable level of release (minimum draw down level) and the highest controlled water surface (static full pool level); also called ‘Effective Capacity’ or ‘Useful Capacity’ or ‘Active Storage Capacity’ or ‘Effective Storage Capacity’ or ‘Useful Storage Capacity’ or ‘Usable Storage Capacity’. The

active capacity is thus the difference of gross storage capacity, and the sum of dead storage capacity and inactive capacity.

**5.1.1** *Active Power Storage Capacity/Effective Power Storage Capacity* — It is the storage capacity available for hydro power generation; and is the difference in gross storage capacity between capacity at full reservoir level (FRL) and capacity at minimum draw down level (MDDL) for hydro power generation.

**5.2 Annual Storage/Within the Year Storage** — The difference between the maximum and minimum volumes in storage over a year of reservoir operation. This term is used to denote the storage of a reservoir meant for meeting the demands of a specific hydrologic year used for planning the project (*see* IS 5477 Part 1).

**5.3 Bank Storage** — Water absorbed and stored in the bed and banks of a stream, lake or reservoir, and returned in whole or in part as the level of the surface of the water body falls.

**5.4 Buffer Storage** — The space located between dead storage level (DSL) and minimum draw down level (MDDL) is termed as buffer storage. As the name implies, this zone is a buffer between the active and dead storage zones and releases from this zone are made in dry situations to cater for essential requirements only. Dead storage and buffer storage together is called inactive storage (*see* Fig. 1) (*see* IS 5477 Part 1).

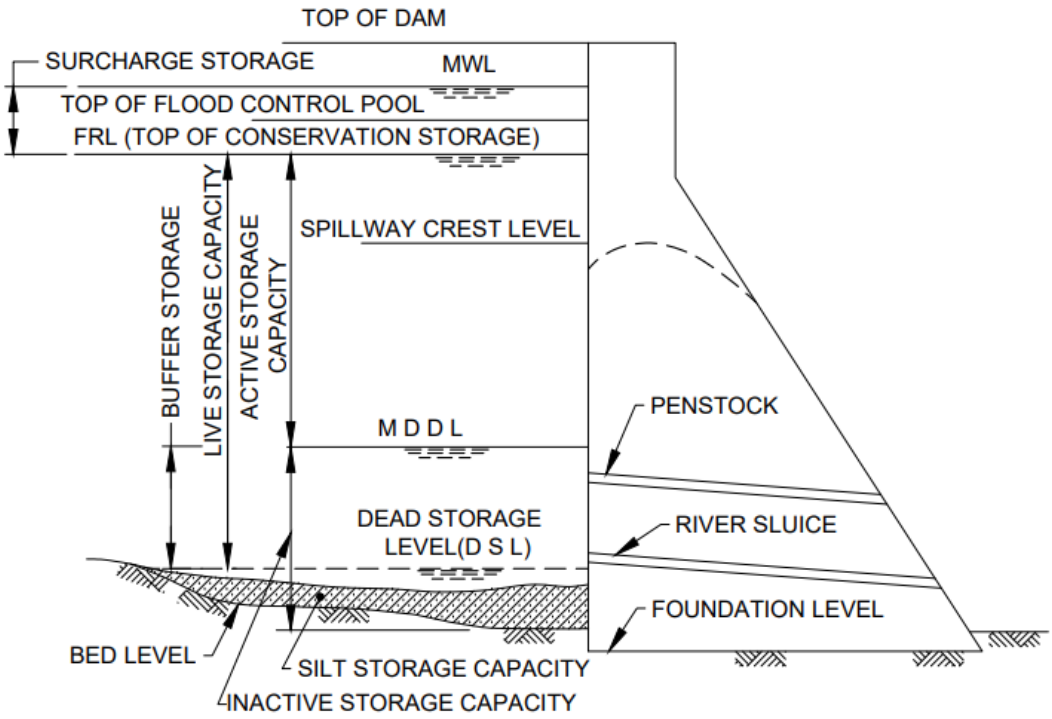


FIG. 1 SCHEMATIC DIAGRAM SHOWING STORAGE (CAPACITY) NOMENCLATURE

**5.5 Capacity/Storage Capacity** — Space available in a reservoir between specified levels whether actually occupied by water or empty.

**5.6 Carry-over Storage** — Storage collected during surplus years for making up deficiencies in subsequent dry or lean year. It is the minimum storage during the year over and above the inactive storage capacity usable for the relevant purpose; also called 'Over Year Storage'. When the entire water stored in a reservoir is not used up in a year, the unused water is stored as carry-over storage for use in subsequent years (*see* IS 5477 Part 1).

**5.7 Coefficient of Storage** — A coefficient to express the relation of live storage capacity in a reservoir, to the mean annual inflow in the reservoir; also called 'Reservoir Factor'. When expressed as percentage it is also termed 'Tank Percentage'.

**5.8 Conservation Storage Capacity**

a) Water storage capacity available for conservation purposes, such as domestic and industrial supply, power generation, and irrigation.

b) Capacity between the top of conservation pool level and bottom level of lowest minimum draw down level (MDDL) provided for releasing water for conservation purpose.

**5.9 Controlled Storage Capacity** — Reservoir storage capacity subject to control by operation of

gates or other control devices. It is the capacity available between highest controlled water level and bottom level of control devices provided for regulation or release of water.

**5.10 Dead Storage** — Storage of a reservoir not susceptible to release by the in-built sluices/outlet means. It is the storage between the dead storage level (DSL) and the ground level. Generally, this is occupied by silt/sediment (*see* Fig. 1) (*see* IS 5477 Part 1).

**5.11 Elevation Area Capacity Curve** — The graph of area of water spread and the storage volume of reservoir each as function of assumed horizontal water surface elevation at specified reference time. This is a combined plot of elevation-capacity and elevation-area curve (*see* Fig. 2).

**5.12 Flood Control Storage Capacity/Exclusive Flood Control Storage Capacity** — Capacity reserved for temporary storage of water during floods to be released later. This represents the capacity between top of conservation pool and the Maximum Water level (MWL); also called 'Effective Flood Control Storage'. This is the storage capacity provided to attenuate the flood peak depending on its volume and downstream releasing constraints (*see* IS 5477 Part 1).

**5.13 Field Storage** — The water which is above full reservoir level (FRL) spreading towards the catchment area constitutes field storage (*see* IS 5477 Part 1).

**5.14 Flowage Line** — A reservoir contour corresponding to a definite water level (maximum, mean, low, spillway crest, etc) generally used in connection with acquisition of rights to flood land for storage purposes.

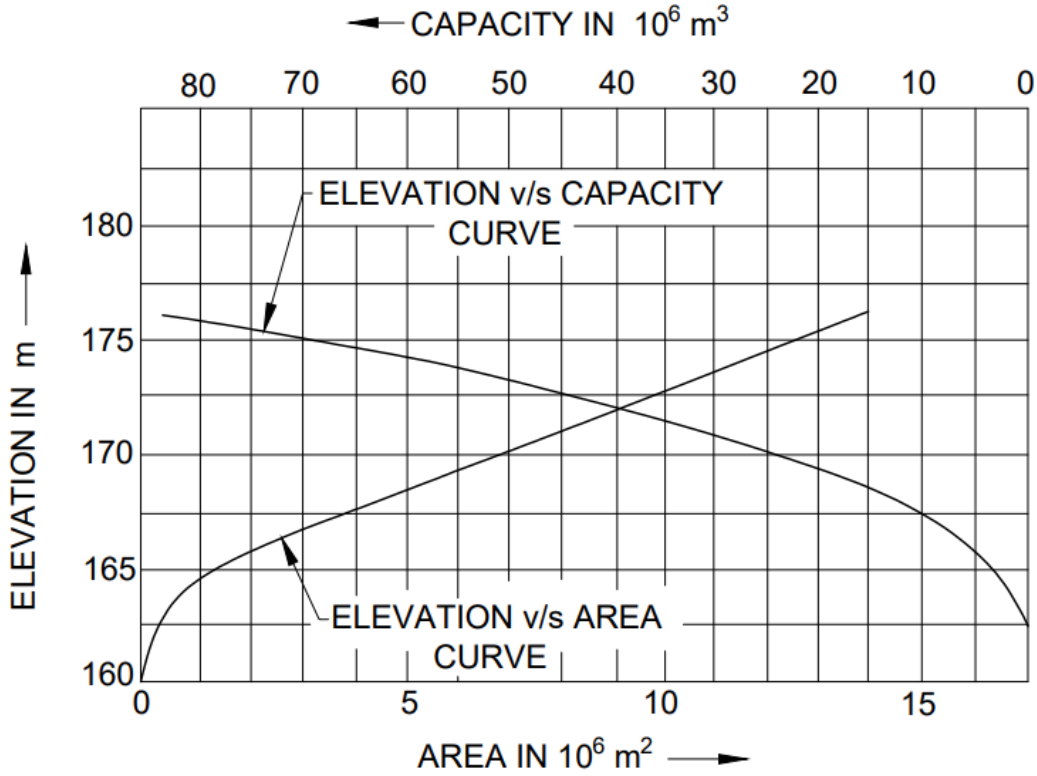


FIG. 2 AREA CAPACITY CURVE

**5.15 Full Reservoir Level (F.R.L.)/Static Full Pool Level/Static Full Reservoir Level/Permanent Water Level or Full Supply Level** — The highest reservoir level that can be maintained without spillway discharge or without passing water downstream through sluiceways. It does not include any depth of surcharge. It is the level corresponding to the storage which includes both active and inactive storages as also the flood storage; if provided for (*see* IS 5477 Part 1).

**5.16 Highest Controlled Water Level** — The highest reservoir level up to which the outflow from the reservoir is planned to be controlled by operation of gates and outlets. For reservoir not having included surcharge operation, this corresponds to 'Full Reservoir Level'.

**5.17 Inactive Capacity** — Storage capacity; exclusive of dead storage, below which release of water is not contemplated because of minimum irrigation and power load requirements, or of operating agreements not to draw the reservoir below a given capacity or elevation for the relevant purposes.

**5.18 Induced Surcharge Capacity** — Capacity which is assigned to flood control purpose during certain period of the year and to conservation purposes during other period of the year. This capacity is available between the highest controlled water level and full reservoir level.

**5.19 Joint Use Capacity (Flood Control and Conservation)** — Capacity between the lowest of the seasonally fluctuating maximum rule curve level and the top of conservation pool level.

**5.20 Live Capacity/Live Storage, Capacity** — Capacity available between dead storage level and full reservoir level.

**5.21 Live Storage** — Volume of water actually available at any time between dead storage level, and the lower of actual water level and full reservoir level.

**5.22 Maximum Rule Curve Level** — The level up to which the storage accumulation for conservational purposes is allowed. This level can fluctuate seasonally and the highest of these seasonal levels will correspond to the top of conservation pool.

**5.23 Maximum Water Level (M.W.L.)** — The maximum water level likely to be attained in the reservoir at the dam face while negotiating the adopted design flood. It also depends on the specified initial reservoir level and the spillway regulation rule. Also called 'Highest Reservoir Level' or 'Highest Floor Level'.

**5.24 Maximum Water Surface Elevation** — The level attained at any specified location in a reservoir while negotiating the adopted design flood. At the dam face this corresponds to maximum water level (*see* 4.24).

**5.25 Minimum Draw Down Level (M.D.D.L)** — It is the lowest level at which the full release towards meeting the specified purpose is physically possible and allowable under operating instructions.

**5.26 New Zero Elevation/Zero Elevation** — The level up to which all the available capacity of the reservoir was or is expected to be lost due to progressive sedimentation of the reservoir, up to the specified time.

**5.27 Reservoir Rim** — The boundary line corresponding to maximum water surface elevation.

**5.28 Silt Storage or Silt/Sedimentation Zone** — Storage designed for accumulation of silt in a reservoir both below and above dead storage level. The space occupied by the sediment in the reservoir can be divided into separate zones. A schematic diagram on sedimentation zones of reservoirs is given in Fig. 1 (*see* IS 5477 Part 1).

**5.29 Storage** — Volume of water available in the reservoir at any specified time and between specified levels.

**5.30 Storage Cycle** — A period at the beginning and end of which the reservoir contents are the same. The period may vary from a few hours to years depending upon inflow and outflow rates.

**5.31 Storage Equation —** An axiom that the volume of inflow equals the volume of outflow plus or minus the change in storage.

**5.32 Submerged Area** — The area that gets under submergence with the formation of the reservoir corresponding to specified reservoir elevation.

**5.33 Surcharge Storage** — Storage capacity between maximum operating level of a reservoir (or full reservoir level) and maximum water level. It is the storage between the full reservoir level (FRL) and the maximum water level (MWL) of a reservoir which may be attained with the spillway surplus at full capacity and the reservoir being at FRL (*see* Fig 1) (*see* IS 5477 Part 1).

**5.34 Top of Conservation Pool Level** — The highest water level permissible for storing water for conservation use, such as municipal supply, irrigation and power generation, but excluding flood control.

**5.35 Total Storage Capacity/Gross Storage Capacity** — Capacity below full reservoir level. It would correspond to the sum of Dead Storage Capacity and Live Capacity. It would also correspond to the sum of Dead Storage Capacity, Inactive Capacity and Active Storage Capacity.

**5.36 Uncontrolled Storage** — Reservoir storage not controlled by gates or other devices. Storage at any time above the Highest Controlled Water Level; that is Full Reservoir Level.

## 6 TERMS RELATING TO SEDIMENTATION IN RESERVOIR

**6.1 Density Currents** — The gravity flow of a fluid through, under or over another similar fluid of different density. Also called, 'Stratified Flow' or 'Density Flow'.

**6.2 Bottom Set Beds** — These are formed from the finer particles usually of silt and clay carried by the stream water in suspension. The particles settle very slowly in the bottom of the reservoir.

**6.2.1** *Fore-set Beds* — These are formed from the coarse sediments carried by the stream usually travelling on or near the stream bottom and deposited where the current retards as it flows out into the reservoir. These are inclined downward in the direction of flow, the inclination increasing with coarseness of the sediment (*see* Fig. 3). Fore-set deposits represent the face of the sediment deposit

advancing into the reservoir and are differentiated from Top-set beds by an increase in slope and decrease in grain size.

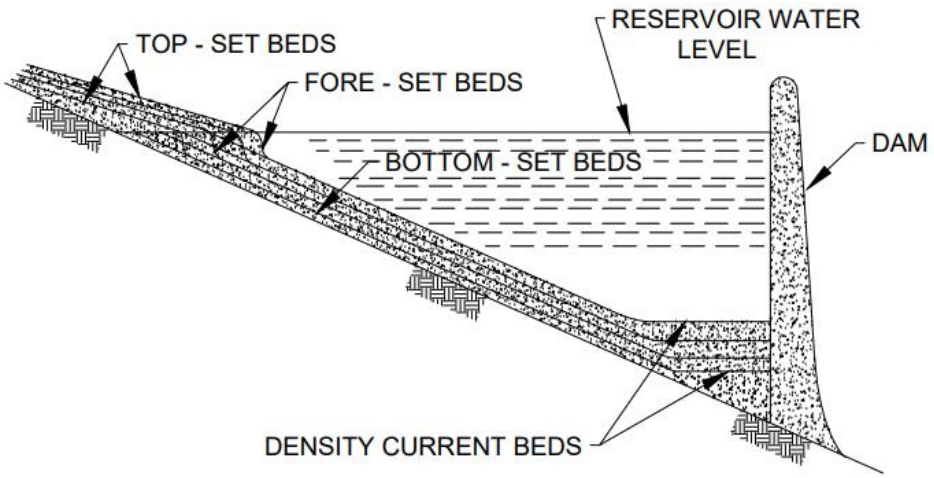


FIG. 3 LONGITUDINAL CROSS SECTION OF A RESERVOIR, SHOWING VARIOUS TYPES OF DEPOSITS

**6.2.2** *Top-set Beds* — These are usually composed of rapid setting coarse sediments and are sloping at a low gradient from the edge of the Fore-set bed which extends as far as the back water curve extends upstream of the reservoir (*see* Fig 3).

**6.3 Inflow Density Currents** — The density currents which flow through turbid media of varying density of similar fluid.

**6.4 Inflow Turbidity Currents** — Turbidity currents flowing between the lighter water and heavier water, for example, water in a reservoir at the surface is warmer and lighter, and at bottom; it is colder and heavier.

NOTE — This difference in densities of water will induce interflow turbidity currents in the reach where the interflowing water has a greater density overlying top water.

**6.5 Overflow Density Currents** — Density currents which overflow another fluid.

**6.6 Overflow Turbidity Currents** — Turbidity currents formed by the inflowing turbid water having lesser density than the water in the reservoir. The case occurs when the turbid water of the river enters the salt water (heavier) of the ocean. These currents can also occur with the water streams discharging into comparatively cold lakes.

**6.7 Plunge Point/Plunge Line** — The zone where the inflowing turbid water entering a reservoir plunges beneath the clear water, thereby producing stratified flow is called the plunge point or plunge line.

**6.8 Sediment Yield** — It is the total quantity of sediment brought in a year to a reservoir as a result of erosion in the watershed. Sediment yield is dependent on the hydro-physical conditions of the watershed. It is expressed in millimeters over unit area of the watershed/catchment per year.

**6.9 Sediment Detention Basin —** This is designed to trap sediment for water quality control, protecting downstream aquatic environments and structures from both suspended bed material and the associated pollutants.

**6.10 Trap Efficiency —** The trap efficiency of the reservoir is defined as the ratio of the total deposited sediment in the reservoir to the total sediment inflow in a year. It is expressed as a percentage of the annual sediment inflow (*see* IS 5477 Part 1).

**6.11 Turbidity Currents** — A class of density currents associated with the suspension of sediment in the flowing water and usually involving the deposition of sediment in reservoirs. The turbidity currents are those density currents caused primarily or entirely by presence of turbidity.

**6.12 Underflow Density Currents** — The density currents flowing under another fluid.

**6.13 Underflow Turbidity Currents** — The common type of density currents, which move down the bottom of a reservoir, lake or deep channel due to greater density of the turbid water resulting from the inclusion of suspended sediment.

**6.14 Types of Underflow Turbidity Currents**

**6.14.1** *Underflow Turbidity Currents, Plunging Type* — The turbid water flowing into a reservoir plunging directly under the clear water in the lake. The formation of this type is indicated by the collection of flowing drift on the surface and the

sharp line of separation of the muddy and the clear water (*see* Fig. 4).

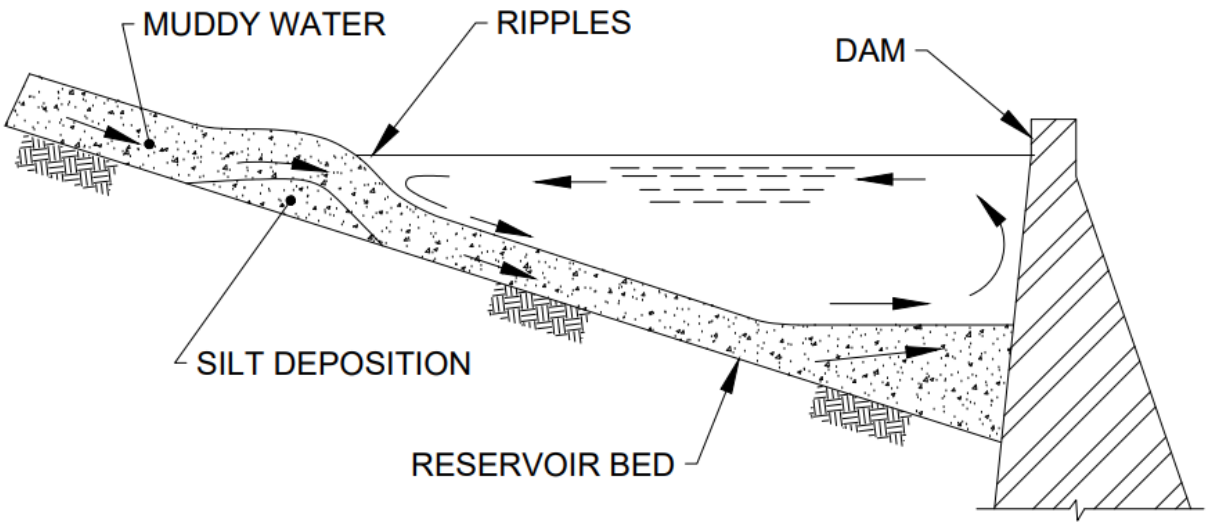


FIG. 4 UNDERFLOW TURBIDITY CURRENTS, PLUNGING TYPE

**6.14.2** *Underflow Turbidity Currents, Settling Type* — The flowing muddy water not diving under the clear water, but pushing it downstream and forms a considerable body of muddy water in which the sediment slowly settles to the bottom, which later on flows down into the reservoir in the form of underflow turbidity currents. The existence of these currents is indirectly inferred from the deep deposit of fine materials in the stream bed near the upper ends of some large reservoirs (*see* Fig. 5).

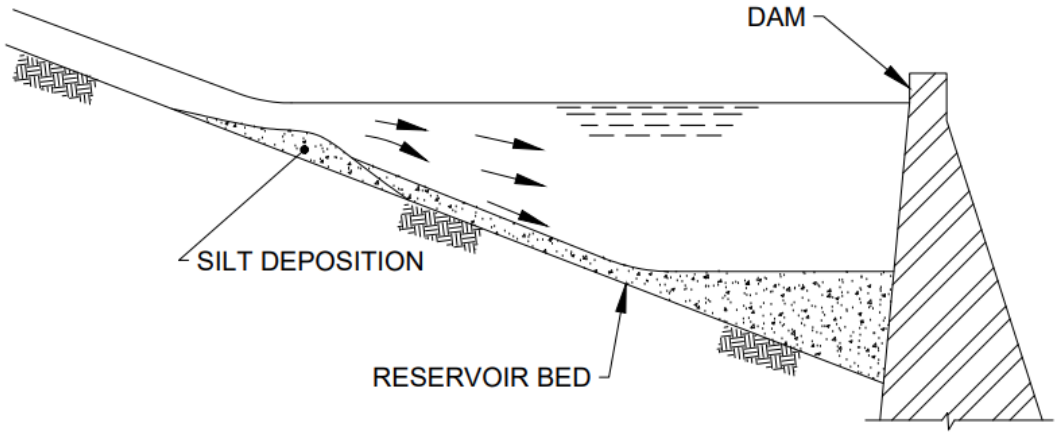


FIG. 5 UNDERFLOW CURRENTS, SETTLING TYPE TURBIDITY

## 7 TERMS RELATING TO EVAPORATION FROM RESERVOIR AND ITS CONTROL

**7.1 Broadcast Method** — Spreading of dry powder of retardant on the water surface through dusting machine like grinder-spreader mounted on a boat which travels over the water surface, the powder spontaneously forms a protecting film; also called 'Dusting Method'.

**7.2 Dispenser** — The equipment used for spraying protective films to retard evaporation.

**7.3 Dispensing Method** — A method of adding retardants to the water surface by first dissolving or emulsifying them in a volatile solvent which evaporates leaving the film of retardants behind the water surface.

**7.4 Dosage** — The quantity of the retardant substance required to form a monolayer on a unit of water surface in the first instance, or for subsequent regular replenishment of the film formed.

**7.5 Evaporation**

a) The process by which the water is changed from the liquid state to a gaseous state below the boiling point through the transfer of heat energy.

b) The quantity of water that is evaporated; the rate is expressed in depth of water, measured as liquid water, removed from a specified surface per unit of time generally in millimeter per day, month or year.

**7.6 Evaporation Pan** — An experimental tank used to determine the amount of evaporation from the surface of water.

**7.7 Evaporation Rate** — Quantity of water which is evaporated from a given water surface per unit of time, expressed in terms of mm depth per day.

**7.8 Evaporation Retardants** — Methods or measures of evaporation reduction from water surface, such as wind breaks, shading and protective films; also called 'Evaporation Retarders' or 'Evaporation Suppressor'.

**7.9 Evaporimeter —** An instrument which measures rate of evaporation of water into atmosphere.

**7.10 Feasible Service Time** — For a specified purpose, the period or notional period for which the reservoir provided, or is/was expected to provide, a planned benefit to some extent of the reservoir being impaired by sedimentation. Customarily, it is estimated as the time when the 'New Zero Elevation' of the reservoir equals the SIL level of the outlet relevant for the purpose.

**7.11 Film Generation** — The spreading of retardant chemical to form a monolayer on the water surface.

**7.12 Film Generator** — A component of the dispenser containing the retardant and releasing it on the water surface for film generation.

**7.13 Fixed Dispenser** — A dispensing equipment in which the retardant containers are located on the periphery of the water spread, which dispense the retardant through tubing, laid submerged in the reservoir and operated through hand contact valve and fitted with or without automatic wind controlled stopcocks; also called 'Shore Line Dispensing Unit' or 'Land Based Dispenser'.

**7.14 Floating Dispenser** — Dispenser mounted on a boat or launch which moves through the water surface for dispensing the retardants.

**7.15 Full Service Time** — For a specified purpose, the period or notional period for which the reservoir provided or is/was expected to provide, the full planned benefit unaffected by the reason of sedimentation.

**7.16 Potential Evaporation** — Quantity of water vapour which could be emitted by a surface of pure water, per unit surface area and unit time, in the existing condition.

**7.17 Surface Evaporation** — Evaporation from the surface of water/snow or ice.

**7.18 Suspension Process** — A patented method of application of $C_{12}$ - $C_{14}$ fatty alcohols of specified particle sizes in aqueous suspension or emulsion to water surface.

**7.19 Wind Breaks** — A barrier composed of planted trees, on the shores of reservoir, designed to break the velocity of the wind over water surface in order to reduce evaporation.

**ANNEX A**

(*Foreword*)

**COMMITTEE COMPOSITON**

Reservoirs and Lakes, Sectional Committee, WRD 10

| *Organisation* | *Representative(s)* |
|---|---|
| National Institute Of Hydrology, Roorkee | DR JAIVIR TYAGI DIRECTOR (***Chairman***) |
| Bhakra Beas Management Board, Chandigarh | SHRI H. L. KAMBOSH<br>EXECUTIVE ENGINEER (*Alternate*) |
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| Central Water Commission, New Delhi | SHRI S. K. SINHA<br>SHRI M. SAI SUDARSANAM (*Alternate*) |
| Department Of Water Resources, Govt. Of Odisha | CHIEF ENGINEER (D&R)<br>DIRECTOR (HEAD WORKS) (*Alternate)* |
| Department Of Water Resources, Govt. Of Punjab, India | SHRI PAWAN KAPOOR<br>SHRI K. K. GUPTA (*Alternate I*)<br>SHRI N. K. JAIN (*Alternate II)* |
| Indian Institute Of Technology, Roorkee | PROF ARUN KUMAR<br>PROF SUMIT SEN (*Alternate)* |
| Irrigation Research Institute, Roorkee | SHRI DINESH CHANDRA<br>SHRI SHANKAR KUMAR SAHA (*Alternate)* |
| J&K Lakes And Water Way Development Authority, Srinagar | EXECUTIVE ENGINEER |
| Maharashtra Engineering Research Institute, Nashik | SHRI YASHAVANT RAO BHADANE |
| Narmada Water Resources,Water Supply & Kalpasar, Gandhinagar | SHRI A. M. BARVE<br>SHRI P. V. VYAS (*Alternate I)*<br>SHRI B. H. CHAUDHARY (*Alternate II)* |
| National Hydroelectric Power Corporation, Faridabad | SHRI RAJEEV BABOOTA<br>MISS BHARTI GUPTA (*Alternate I)*<br>MR ANKUR SHARMA (*Alternate II)* |
| National Institute Of Hydrology, Roorkee | DR M. K. GOEL<br>DR S. D. KHOBRAGADE (*Alternate)* |
| National Remote Sensing Centre, Hyderabad | DR V. VENKATESHWAR RAO |

| *Organisation* | *Representative(s)* |
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| | SHRI ABDUL HAKEEM (*Alternate)* |
| National Thermal Power Corporation Limited, New Delhi | SHRI RAKESH SHARMA |
| | DR A. K. SINGH (*Alternate)* |
| National Water Academy, Pune | SHRI ASHOK KUMAR KHARYA |
| | SHRI S. N. PANDE (*Alternate)* |
| National Water Development Agency, New Delhi | SHRI R. K. JAIN |
| | SHRI MUZAFFAR AHMED (*Alternate)* |
| Office Of The Engineer In Chief, Bhopal | SHRI B. C. PURANDARE |
| | SHRI S R UIKEY (*Alternate)* |
| Sardar Sarovar Narmada Nigam Limited, Gandhinagar | SHRI C. V. NADPARA |
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| Satluj Jal Vidyut Nigam Limited, Shimla | SHRI VINAY GULERIA |
| | SHRIMATI SUDHA DEVI (*Alternate)* |
| Tehri Hydel Development Corporation India Limited, Rishikesh | SHRI VIRENDRA SINGH |
| | SHRI ATUL KUMAR SINGH (*Alternate)* |
| Water And Power Consultancy Services Limited, New Delhi | DR A. K. SHARMA |
| | SHRI A. STEPHEN LEO (*Alternate)* |
| Water Resources Department, Govt. of Andhra Pradesh | SHRI A. SURI BABU |
| Water Resources Department, Govt. of Maharashatra | SHRI. RAJESH M. MORE |
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| Wetlands International South Asia | DR RITESH KUMAR DIRECTOR |
| | SHRI HARSH GANAPATHI (*Alternate)* |
| In Personal Capacity, New Delhi | DR A. L. RAMANATHAN |
| BIS Directorate General | SHRI R BHANU PRAKASH, SCIENTIST 'E' AND HEAD (WRD) [REPRESENTING DIRECTOR GENERAL (Ex-Officio)] |

*Member Secretary*

SHRI NAVDEEP YADAV
SCIENTIST 'B' (WRD), BIS

(*Continued to third cover*)

The revision of the standard has been taken up in the light of the experience gained during the last many years in the use of this standard. The terms which have been modified are Reservoirs, Auxiliary or Compensatory Reservoir, Balancing Reservoir, Carry-over Storage, Conservation Storage Capacity, Elevation Area Capacity Curve, Flood Control Storage Capacity, Flowage Line, Inactive capacity, Induced Surcharge Capacity, Submerged Area, Total Storage Capacity, Foreset Beds, Suspension Process, Wind Breaks and new terms like Normal Ponded Reservoir, Bank Side Reservoir, Sediment Detention Basin, Plunge Point/Plunge Line, Evaporimeter have been added. In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. In this standard assistance is taken from ICID multilingual technical dictionary on irrigation and drainage for definition of terms related to river valley projects.

The composition of the Committee responsible for formulation of this standard is given at Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the results of a test or analysis, should be rounded off in accordance with IS 2 : 2022 “Rules for rounding off numerical values (*second revision*)”. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**Bureau of Indian Standards**

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

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**Review of Indian Standards**

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: WRD 10 (16886).

## Amendments Issued Since Publication

| Amend No. | Date of Issue | Text Affected |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

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